Boiler MACT/CISWI Presentation
Waste 2 Resources Advisory Committee Meeting
March 15, 2011

Boiler MACT Background

- The CAA requires EPA to develop rules to reduce air toxics emissions from categories of facilities that emit one or more of 187 listed toxic air pollutants. These rules require the application of emissions limits based on maximum achievable control technology.

- EPA identified industrial boilers, commercial and institutional boilers, and process heaters as categories of major sources for which emission standards must be developed.

- The schedule for completing this rule is part of a court order, which requires the EPA Administrator to complete a final rule by February 21, 2011.

- In September 2004, EPA promulgated national emission standards for hazardous air pollutants for new and existing industrial/commercial/ institutional boilers and process heaters.

- In June 2007, the United States Court of Appeals for the District of Columbia Circuit vacated and remanded the 2004 standards because it vacated in the same decision an EPA definitional rule that included units combusting solid waste for energy recovery as boilers instead of as incinerators.

- In spring 2010 EPA re-proposed new rules.

- EPA received a very high volume of comments on the proposed rules as well as significant political pressure.

- In January 2011 EPA asked the Court for more time (15 months) to consider and respond to the comments.

- The Court said no and demanded that EPA promulgate the standards by February 21, 2011.

- EPA responded by promulgating the rule on-time with significant changes and a pledge to immediately reconsider the rule.

Related Actions

- In addition to “Boiler MACT” for major and area sources, EPA has taken several related actions.

- EPA has also finalized a rule to reduce air toxics from Commercial and Industrial Solid Waste Incinerators (CISWI). This final rule reflects the Agency’s final definition of *non*-hazardous solid waste.

- EPA has finalized a rule to reduce air toxics from sewage sludge incinerators. Sewage sludge incinerators (SSI) are incinerators or combustion devices used to burn dewatered sewage. They are typically located at waste water treatment plants.

- EPA has finalized a definition of non-hazardous solid waste under RCRA. The definition could potentially affect some units currently considered boilers by moving them into the category of incinerators if they burn solid waste.

Solid Waste System Implications

- The rule identifies under the Resource Conservation and Recovery Act (RCRA), which non-hazardous secondary materials **when used in a combustion** unit are or are not solid wastes.

- The final rule does not address the question of which non-hazardous secondary materials are or are not solid wastes in any other beneficial use or recycling situation (for example, land application). This will continue to be up to the individual states.

- Some industrial boilers currently burn fuels that the new EPA definition considers to be solid waste.

- This may push some of these boilers into the CISWI category with different and more stringent limits and/or testing requirements.

- These boilers may choose to either stop burning these materials or to work with generators or recyclers to seek a "non-waste" determination from EPA.

- The key factors the agency considered were:

    - Whether the material has been discarded—that is, whether it has been abandoned, disposed of, or thrown away, and
    - If material has been discarded, whether it has been sufficiently processed to produce a new non-waste fuel or ingredient product. ***Minimal processing, such as only in modifying the size of material by shredding, would not be considered processing under this rule.***

- Examples of items that are solid waste include:

    - Whole scrap tires from waste tire piles.
    - Off-specification used oil.
    - Sewage/wastewater treatment sludge.
    - Contaminated construction and demolition material.
    - Chromate copper arsenate treated wood.
    - Unprocessed animal manure.

- Examples of secondary materials designated not to be solid wastes (if they meet the legitimacy criteria):

    - Borate-treated wood when burned by generator and no other contaminants.
    - Clean biofuels/biogas processed from solid waste.
    - Scrap tires removed from vehicles and managed under established tire collection programs and tire-derived fuel from the processing of scrap tires removed from tire piles (shredded with the steel belts and wire have been removed).

- Materials, such as cement kiln dust, coal ash, and foundry sand that are used as ingredients in manufacturing processes (e.g., in cement kilns).
- Resinated wood residuals.
- Legacy coal refuse that has been processed.
- C&D-derived wood, if it has been sufficiently processed.
- Discarded cement kiln dust & coal combustion residuals if processed.
- Old corrugated cardboard rejects.
- Processed animal manure burned by generator or processed into biofuel.
- Pulp and paper sludges.

- Items that are traditional fuels or alternative fuels:

  - Clean cellulosic biomass (Ex: forest-derived, crop residue), fossil fuels, and fossil fuel derivatives.
  - On-specification used oil.
  - TDF and whole Tires if collected and managed under the oversight of established collection program. (Steel belts removed from TDF)
  - Currently mined coal refuse.
  - Processed fats.
  - Cement kiln dust that has not been discarded.

- For non-hazardous secondary materials <u>used as a fuel</u>, ***the legitimacy criteria*** are that the secondary material must:

  - Be managed as a valuable commodity;
  - Have meaningful heating value and be burned in units that recover energy; and
  - Contain contaminants that are comparable to or lower than in traditional fuel products.

- For non-hazardous secondary materials <u>used as an ingredient</u>, ***the legitimacy criteria*** are that the secondary material must:

  - Be managed as a valuable commodity;
  - Provide a useful contribution;
  - Be used to make a valuable product; and
  - Contain contaminants that are comparable to or lower than in traditional products.

- Non-waste determinations will be further based on the following five criteria:

  - Whether market participants treat the non-hazardous secondary material as a fuel rather than a waste;
  - Whether the chemical and physical identity of the non-hazardous secondary material is comparable to commercial fuel;
  - Whether the capacity of the market would use the non-hazardous secondary material in a reasonable timeframe;

- Whether the constituents in the non-hazardous secondary material are released to the air, water or land from the point of generation to just prior to the point of combustion of the secondary material at levels comparable to what would otherwise be released from traditional fuels; and
- Other relevant factors that demonstrate the non-hazardous secondary material is not discarded.

- It is currently uncertain whether petitions for "non-waste" determinations will be made by the EPA Regional Director or EPA HQ. The initial rule stated decisions would be made in the regions but statements by HQ staff suggest otherwise. **This is a key matter of clarity to press EPA on.**

Major Source Requirements under Boiler MACT

- For all new and existing natural gas- and refinery gas-fired units, the final rule establishes a work practice standard, instead of numeric emission limits. The operator will be required to perform an annual tune-up for each unit. Units combusting other gases can qualify for work practice standards by demonstrating that their fuel contaminant levels are similar to natural gas.

- For all new and existing units with a heat input capacity less than 10 million British thermal units per hour (MMBtu/hr), the final rule establishes a work practice standard instead of numeric emission limits. The operator will be required to perform a tune-up for each unit once every 2 years.

- For all new and existing limited use units, which are units that operate less than 876 hours per year, the final rule establishes a work practice standard instead of numeric emission limits. The operator will be required to perform a tune-up for each unit once every 2 years.

- The final rule establishes numeric emission limits for all other existing and new boilers and process heaters located at major sources – including those fired by coal or biomass. The final rule establishes emission limits for:

  - Mercury,
  - dioxin,
  - particulate matter (PM) (as a surrogate for non-mercury metals),
  - hydrogen chloride (HCl) (as a surrogate for acid gases), and
  - carbon monoxide (CO) (as a surrogate for non-dioxin organic air toxics).

- Existing major source facilities are required to conduct an energy assessment to identify cost-effective energy conservation measures.

Area Source Requirements Under Boiler MACT

- The final rule establishes standards to address emissions of mercury, particulate matter (PM) (as a surrogate for non-mercury metals), and carbon monoxide (CO) (as a surrogate for organic air toxics).

- For new boilers the final rule requires the following:

    - Coal-fired boilers, with heat input equal or greater than 10 million Btu per hour, are required to meet emission limits for mercury, PM, and CO.
    - Biomass and oil-fired boilers, with heat input equal or greater than 10 million Btu per hour, must meet emission limits for PM.

For existing boilers, the final rule requires the following:

    - Coal-fired boilers, with heat input equal or greater than 10 million Btu per hour, are required to meet emission limits for mercury and CO.
    - Biomass boilers, oil-fired boilers, and small coal-fired boilers are not required to meet emission limits. They are required to meet a work practice standard or a management practice by performing a boiler tune-up every 2 years. By improving the combustion efficiency of the boiler, fuel usage can be reduced and losses from combustion imperfections can be minimized. Minimizing and optimizing fuel use will reduce emissions of mercury and all other air toxics.
    - All area source facilities with large boilers would be required to conduct an energy assessment to identify cost-effective energy conservation measures.

Reconsideration

- EPA also will issue a notice announcing that it will "reconsider" certain aspects of the boiler and CISWI rules. The SSI rule is not part of the reconsideration. The final boiler and CISWI rules reflect reasonable approaches consistent with the requirements of the Clean Air Act. However, some of the issues identified in the comments on our April 2010 proposals raised difficult technical issues that the Agency believes would benefit from additional public involvement. EPA is in the process of developing a proposed rule that will request additional comment on:

    - Specific elements of the final rules that would benefit from additional public review and comment; and
    - Any provisions that EPA proposes to modify or add after more fully evaluating the data and comments already received.

- EPA will fully evaluate any petitions submitted to the Agency requesting that the rules be reconsidered. Additional issues may be added for reconsideration as appropriate.